

## ABSTRACT

An adjustment method and system for an auxiliary power unit (APU) allows the APU speed to vary based on the inlet air temperature to the APU compressor. The APU is controlled by a control law that allows the APU speed to float within a selected range based on speed and electric power generators phase matching criteria that provides smooth power transfer between the APU and a main engine generator. The specific APU mechanical speed for a given temperature may be determined from a compressor map that identifies the optimum combination of pressure ratio, flow rate and efficiency for a given inlet temperature, and avoids running the APU near mechanical resonant vibration conditions.

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